

28th. Iowa, 11th, 24th, 25th and 29th. Indian Territory and Texas, 1st, 11th, 12th, 17th, 18th, 20th, 24th, 25th, 27th, 28th and 29th. California, on the 10th.

*Auroras.*—Harvard College Observatory, Cambridge, Mass., looked for every clear evening, none seen; 11th, 20th, 29th, evenings, hazy or cloudy. New Corydon, Ind., 8th, 10 p. m.; Muscatine, Ia., 19th, 7 to 10 p. m.; Gardiner, Me., 1st, 29th; Cumberland, Md., 26th; Starkey, N. Y., 6th, 10th, 20th, 27th, 29th; Pembina, 29th; Eastport, 6th, 7th, (29th, 9 to 11:30 auroral arch 20° in height and extending from NNW. to NNE).

*Telegraphic communication interfered with by atmospheric electricity.*—Ft. Sill, 12th, 24th; Jacksboro, Tex., 24th; Henrietta, Tex., 24th; Mason, Tex., 27th.

## OPTICAL PHENOMENA.

*Solar Halos* observed in the various districts on the following dates: New England, 4th, 5th, 7th, 8th, 19th, 11th, 18th, 20th, 21st, 22nd, 24th, 25th, 27th. Middle Atlantic States, 1st, 2nd, 6th, 9th, 10th, 11th, 17th, 18th, 20th, 24th, 25th, 27th, 29th. South Atlantic States, 7th, 9th, 25th, 27th, 28th. Eastern Gulf States, 7th, 9th, 11th, 27th, 28th. Western Gulf States, 5th, 6th, 19th, 27th. Lower Lake region, 2nd, 3rd, 5th, 6th, 13th, 14th, 15th, 18th, 20th, 21st, 27th. Upper Lake region, 2nd, 9th, 11th, 14th, 15th, 16th, 18th, 29th. Ohio valley, 2nd, 12th, 16th, 22nd, 23rd, 24th. Upper Mississippi valley, 2nd, 3rd, 5th, 15th, 16th, 17th, 18th, 22nd, 23rd, 24th, 25th, 26th, 27th, 28th, 29th. Missouri valley, 2nd, 4th, 6th, 10th, 12th, 13th, 14th, 15th, 17th, 20th, 22nd, 24th, 27th, 29th. Rocky Mountains, 6th, 8th, 9th, 10th, 15th, 16th, 17th, 23rd, 27th, 28th. Western Plateau, 8th, 20th, 27th, 28th. California, 8th, 17th, 26th. Oregon, 7th.

*Lunar Halos* were observed in the various districts on the following dates: New England, 2nd, 20th, 21st, 22nd, 24th, 25th, 27th. Middle Atlantic States, 14th, 16th, 17th, 18th, 20th, 21st, 23rd to 27th. South Atlantic States, 9th, 16th, 17th, 19th, 25th. Eastern Gulf States, 16th, 17th, 18th, 19th, 21st, 23rd to 27th. Western Gulf States, 15th, 17th, 18th, 19th, 20th to 27th, 29th. Lower Lake region, 9th, 12th, 14th, 15th, 16th, 21st, 22nd, 24th. Upper Lake region, 12th, 15th, 16th, 17th, 19th, 20th, 22nd, 25th. Upper Mississippi valley, 14th to 19th, 21st to 29th. Ohio valley and Tennessee, 15th, 16th, 17th, 18th to 25th. Missouri valley, 3rd, 14th, 16th, 17th, 18th, 22nd, 23rd, 24th. Rocky Mountains, 17th, 18th, 19th, 20th, 21st, 22nd. Western Plateau, 17th, 18th, 19th, 21st, 22nd, 25th. California, 25th. Oregon, 18th, 20th.

*Mirage.*—Oregon, Mo., 9th, 14th; Genoa, Neb., 1st, 2nd, 3rd, 7th, 8th, 29th; Pembina, 5th.

## MISCELLANEOUS PHENOMENA.

*Sunsets.*—The characteristics of the sky at sunset, as indicative of fair or foul weather for the succeeding twenty-four hours, have been observed at all Signal Service Stations. Reports from 130 stations show 3,745 observations to have been made, of which 32 were reported doubtful; of the remainder 3,110, or 83.8 per cent, were followed by the expected weather.

*Meteors.*—New Corydon, Ind., 1st, 6th, 7th; Cedar Vale, Kan., 8th; Woodstock, Md., 1st, 16th, 24th, 26th; Fayette, Miss., 13th; Oregon, Mo., 7th, 27th; Waterbury, N. Y., 7th, 14th, 17th; North Volney, N. Y., 28th; Starkey, N. Y., 16th; Boise City, Idaho, 12th, 20th; Madison, Wis., 17th; Rochester, 5th.

*Zodiacal Light.*—Harvard College Observatory, Cambridge, Mass., looked for every clear evening; distinctly visible on the 2nd, 8th; visible 1st, 4th, 5th, 6th, 7th, 9th; observations on other evenings hindered by moonlight, clouds or haze. Southington, Conn., visible on the 7th and 8th. New Corydon, Ind., on the 1st, 4th, 5th, 7th, 8th, 9th, 10th. Muscatine, Iowa, on the 5th and 8th; Cresco, Ia., on the 7th, 8th, 11th, 12th, 29th; Monticello, Ia., on the 3rd and 9th; Ft. Dodge, Ia., on the 4th and 5th. Cedar Vale, Kan., from the 1st to 9th, 11th, 13th, 14th, 27th, 28th. Somerset, Mass., on the 1st, 4th to 9th, 11th, 27th; Fall River, Mass., on the 1st and 29th. Oregon, Mo., on the 3rd, 5th, 6th, 7th, 8th, 9th, 28th. Austin, Neb., on the 6th. Atco, N. J., on the 1st, 2nd, 3rd, 4th, 6th, 7th, 8th, 9th, 10th, 12th, 16th. Waterburgh, N. Y., on the 1st, 5th, 6th, 7th, 8th, 9th; Starkey, N. Y., on the 25th. Bellefontaine, Ohio, on the 7th, 9th and 19th. Coalville, Utah, on the 3rd and 28th. Wytheville, Va., on the 3rd, 6th and 28th. Woodstock, Vt., seen on clear evenings in the latter part of the month. Lynchburg, Va., on the 3rd, 4th, 6th, 7th. Ft. Whipple, Va., on the 23d. Mr. Ch. Hasselbrink remarks as follows in reference to observations made by him at Havana, Cuba: "February 28th, visible at about 7 p. m.; does not extend more than 30° above the true horizon. The borders or sides of the triangular shape less defined than ever; has at times the appearance of a mass of dust illumined by some source of light; not constant; intensity varies at intervals; real intermittence. The inclination on the horizon is not considerable. The axis approaches the perpendicular and forms with the horizontal line an angle of about 80 degrees; commences vanishing at about 8 p. m. February 29th, not visible; western region cloudy."

*Polar Bands.*—New Corydon, Ind., 9th, 16th, 20th and 27th; Guttenburg, Ia., 22nd; Yates Center, Kan., 17th; Gardiner, Me., 8th, 21st, 22nd, and 25th; Thornville, Mich., 22nd; Auburn, N. H., 3rd and 27th; Freehold, N. J., 2nd, 12th, and 24th; Vineland, N. J., 28th; Wytheville, Va., 2nd, 6th, 11th and 20th.

*Prairie and Forest Fires.*—Glenwood, Ia., 23rd; Creswell, Kan., 2nd, 3rd, 5th to 15th, 17th to 29th;